

REMARKS

The Examiner has objected to the drawings in the present application under 37 C.F.R. 1.83(a). The Examiner states that the drawings do not show every feature of the invention specified in the claims. In particular, the Examiner states that the mating sections on the injector as recited in claims 5 and 9, the coupling element interior cavity as recited in claim 7, and the motor as recited in claim 8 are not shown in the drawings and that those features must either be shown in the drawings or canceled from the claims. In response, Applicants submit herewith a replacement Fig. 2 depicting a motor along with the other features of the claimed invention. In particular, since the "motor" is merely a conventional feature disclosed in the claims and its detailed illustration is not essential for a proper understanding of the invention, the motor is illustrated as a labeled rectangular box. Support for the addition of the motor to Fig. 2 can be found in the specification at least at page 5, line 2; page 10, line 2; page 10, line 12; page 12, line 11; page 13, line 2; and page 14, line 9. The specification has also been amended at page 10 to reflect the addition of the motor to Fig. 2. Applicants respectfully disagree with respect to the remaining objections to the drawings regarding claims 5, 7, and 9.

As stated above, in objecting to the drawings the Examiner has suggested that the mating sections on the injector as recited in claims 5 and 9 are not depicted in the drawings. Applicants respectfully disagree and submit that injector mating sections are depicted in the drawings. The injector mating sections are shown in Figs. 4A - 4C and 5A. However, the injector mating systems in those drawings are not identified by a number label. Thus, Applicants submit herewith replacement Figs. 4A - 4C and

replacement Figs. 5A - 5B in order to add reference numerals to clarify the injector mating sections as they were depicted in the originally submitted drawings. Additionally, support for any injector mating section depicted in the drawings and disclosed in the application can be found at least at page 9, lines 9-11 of the present application.

As stated above, the Examiner has also stated that the coupling element interior cavity as recited in claim 7 is not depicted in the drawings. Applicants respectfully disagree and note that such a coupling element cavity is present in Figures 5A and 5B labeled with reference number 80. Further support may be found in the specification at least at page 14, lines 13-18. In view of the above, applicants respectfully request that the Examiner withdraw the objections to the drawings.

Claim Rejections 35 U.S.C. § 112:

The Examiner has rejected claims 4, 7, 8, and 9 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the Examiner notes that claim 4 recites the limitation "the body of the syringe", claim 8 recites "the portion of said extension", and that claim 9 recites "said syringe mounting". It is the Examiner's contention that there is insufficient antecedent basis for these limitations in the claims. In response, Applicants herewith submit amended claims 4, 8, and 9 which include the necessary antecedent basis. Applicants thus respectfully request withdrawal of the § 112 rejection for claims 4, 8, and 9.

The Examiner has also rejected claim 7 as failing to distinctly claim the subject matter Applicants regard as the invention because claim 7 recites a coupling element with an interior cavity. The Examiner contends that the specification and

drawings do not show any coupling element having an interior cavity. Applicants respectfully disagree. As noted above with respect to the rejection of the drawings, such a coupling element interior cavity is depicted in Figures 5A and 5B at reference numeral 80. This coupling element interior cavity also finds support in the specification at least at page 13, line 18 through page 14, line 20. Thus, Applicants respectfully request withdrawal of this rejection of claim 7 under 35 U.S.C. § 112.

Claim Rejections 35 U.S.C. § 102:

The Examiner has rejected claims 1-11 of the present application under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,300,031, issued to Neer et al. The Examiner states that Neer et al. shows a syringe having a barrel, a plunger with a knurled coupling element, a conical front, syringe mating sections comprising an annular flange fixed to the syringe body, and an anterior cavity in the coupling element. By rejection under 35 U.S.C. § 102(b), the Examiner therefore suggests that the Neer et al. reference discloses each and every element of claims 1-11 of the present application. Applicants respectfully disagree.

Applicants note that the coupling element of the Neer et al. reference includes a T- or mushroom-shaped button located at the end of the plunger drive ram (See reference number 96 in Fig. 4). As can be seen, this button includes an extension protruding from the rearward face of the syringe plunger, topped by a cap. Applicants further note that such a coupling element would exhibit discontinuity in cross-sections taken along its longitudinal axis, in that a cross-section taken at the cap of the button would be of a much greater diameter than a cross-section taken along the extension protruding from the rearward face of the syringe plunger. By contrast, independent

claims 1 and 8 of the present application, which are the only independent claims of the present application, as amended explicitly state that the rearwardly facing extension of the coupling mechanism exhibits "no discontinuity of its transverse cross-sections along a portion of said extension adapted to be gripped by a coupling mechanism". Thus, Applicants submit that the Neer et al. reference fails to disclose each and every claimed element of the present application in claims 1 and 8. Applicants thus submit that claims 1 and 8 are not anticipated by the Neer et al. reference. Since claims 1 and 8 are not anticipated, Applicants further submit that dependent claims 2-7 and 9-11 are also not anticipated by the Neer et al. reference. Applicants therefore respectfully request a withdrawal of this rejection.

Conclusion:

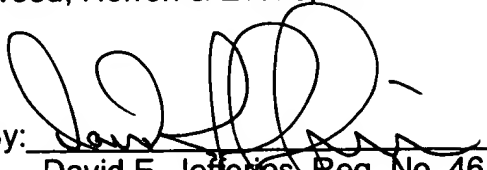
For the foregoing reasons, Applicants submit that all claims are patentable and a Notice of Allowance is respectfully requested.

Applicants believe that no fee is due. If, however, any additional fee or surcharges are deemed due, please charge same or credit any overpayment to deposit account no. 23-3000.

The Examiner is invited to contact the undersigned attorney with any questions or remaining issues.

Respectfully submitted,

Wood, Herron & Evans, L.L.P.

By: 
David E. Jeffries, Reg. No. 46,800

Wood, Herron & Evans, L.L.P.
2700 Carew Tower
441 Vine Street
Cincinnati, Ohio 45202
(513) 241-2324 (telephone)
(513) 421-7269 (facsimile)
K:\L-F\180DV\Resp to O.A

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the drawings:

Fig. 2 has been deleted and replaced with new Fig. 2 attached hereto.

Fig. 4A has been deleted and replaced with new Fig. 4A attached hereto.

Fig. 4B has been deleted and replaced with new Fig. 4B attached hereto.

Fig. 4C has been deleted and replaced with new Fig. 4C attached hereto.

Fig. 5A has been deleted and replaced with new Fig. 5A attached hereto.

Fig. 5B has been deleted and replaced with new Fig. 5B attached hereto.

In the specification:

The paragraph of the specification beginning at page 9, line 1 has been deleted and replaced with the following rewritten paragraph:

The syringe 22 includes an exterior cylindrical barrel or body 32, which at its forward end is integral with a conical front wall section 36. A neck 38, terminating in discharge tip 34, extends forwardly from and is integral with the front wall 36. The body 22 of the syringe snugly engages the interior walls of the pressure jacket 30. This syringe 22 includes a syringe mating section 29, preferably in the form of a radially outwardly extending annular flange, which is positioned in a plane perpendicular to the axis of and integral with the rear end of the cylindrical body of the syringe. The syringe mating section is arranged, when the syringe is located within the pressure jacket, to align with cooperating mating sections 25 located on the rear end of the pressure jacket. In this manner, the syringe and pressure jacket mating sections 29, 25 facilitate the connection of the syringe 22 to the injector 10.

The paragraph of the specification beginning at page 9, line 21 has been deleted and replaced with the following rewritten paragraph:

Referring now to Fig. 2, the syringe plunger 26 can be seen more clearly within the cylindrical barrel 32 of the syringe 22. The syringe plunger 26 is attached to the plunger drive ram 28 of the injector 10. The plunger drive ram 28 is driven by a motor 27 to deploy the plunger drive ram 28 and syringe plunger 26 in a forward or rearward motion along the axis of symmetry 23 of the syringe cavity 42 to inject fluid into an animal subject or fill the syringe with fluid, respectively. As illustrated in Figs. 2-4C, the end of the drive ram 28 proximate to the syringe plunger 26 is provided with a cavity, open at its front, in which is positioned the coupling mechanism 46 (Fig. 4A).

The paragraph of the specification beginning at page 10, line 8 has been deleted and replaced with the following rewritten paragraph:

Fig. 2 depicts, in engaged relationship, the coupling element 44 of the syringe plunger 26 and the coupling mechanism 46 of the plunger drive ram 28. Once the coupling mechanisms 44 and 46 are engaged, the syringe plunger 26 can be moved rearwardly by the plunger drive ram 28 under force of the injector motor 27 when it is desired to retract the syringe plunger, such as when filling the syringe.

In the claims:

Claims 1, 4, 8, and 9 have been amended as follows:

1. (Amended) A syringe for mounting to an injector for injecting fluids into an animal subject, said syringe comprising:

a cylindrical barrel;

a plunger snugly slidable in said cylindrical barrel, said plunger having a rearwardly facing drive ram engaging coupling element thereon in the shape of a rearwardly facing extension exhibiting no discontinuity in its transverse cross-sections along [the] a portion of said extension adapted to be gripped by a coupling mechanism; and

a discharge tip in fluid communication with a forward end of said cylindrical barrel.

4. (Amended) The syringe of claim 1 further comprising syringe mating sections positioned in a plane perpendicular to the longitudinal axis of the [body of the syringe] cylindrical barrel, wherein said syringe mating sections facilitate mounting of said syringe to an injector.

8. (Amended) An injector for injecting fluids from a syringe into an animal subject, comprising;

a housing;

a plunger drive ram bidirectionally movable along an axis and mounted within said housing;

a motor drivingly coupled to said drive ram to selectively advance and retract said drive ram along said axis into and out of said housing;

a syringe for mounting to said injector comprising a cylindrical barrel, a plunger snugly slidable in said cylindrical barrel, said plunger having a rearwardly facing drive ram engaging coupling element thereon in the shape of a rearwardly facing extension exhibiting no discontinuity of its transverse cross-sections along [the] aportion of said extension adapted to be gripped by a coupling mechanism, and a discharge tip in fluid communication with said cylindrical barrel; and

a movable face plate used to position a syringe relative to said injector housing to permit said drive ram to engage and move said plunger within said syringe.

9. (Amended) The injector of claim 8 further comprising injector mating sections [positioned about said syringe mounting], said syringe further comprising syringe mating sections positioned in a plane perpendicular to the axis of the body of the syringe and arranged so as to align with the injector mating sections.